

FEBRUARY 6, 1922

AVIATION

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THOMAS-MORSE AIRCRAFT CORPORATION



Thomas-Morse Training 2-Seater
in flight over Ithaca, N. Y.

THOMAS-MORSE AIRCRAFT CORPORATION



Glenn L. Martin Planes in the Making

One of the most interesting spots in the whole Glenn L. Martin works is the assembly room where the fuselages are set up.

Wood and steel are combined here in a way to produce a foundation structure of maximum strength and alignment, together with light weight. The parts are exactly gauged in the departments which turn them out that they go together in the assembly room with an accuracy

and precision which is almost uncanny. In the assembly room you see the fuselage in every stage of development -- from the first light skeleton -- which seems hardly more than a mere tracery of form -- to the grim and finished monster waiting only for its wings.

THE GLENN L. MARTIN COMPANY CLEVELAND

Member of the Manufacturers Aircraft Association

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W. D. MANNING VICE-PRESIDENT
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Vol. XII

FEBRUARY 6, 1932

No. 6

Registering Civil Aircraft

THE publication in this issue of the first list of aircraft pilots' and aircraft registrars effected by Underwriters' Laboratories will be greeted with considerable interest by all those who have at heart the best interests of American civil aviation. This list is the first concrete evidence of the serious work inaugurated last summer by Underwriters' Laboratories for the purpose of subjecting American civil aircraft to the provisions of the International Air Convention, and thus bringing them within the purview of the world's law of the air.

We have dwelt at various times upon the desirability of Congress ratifying the International Convention, being convinced that the very essence of aircraft makes such a world wide understanding a prime necessity for the healthy development of civil aviation. Various congressmen in the last two years have helped to bear out our contention of the many evils of unlicensed flying, and have given emphasis to the increasing volume of claims which demands federal air legislation in accordance with the International Convention. Lack of interest in international aviation on the part of Congress has as far resulted in perpetuating the lawless state of American civil aviation, although new hopes are kindled on the passage of the excellent Wadsworth-Ricks bill. Whether these hopes are justified, remains to be seen. If Congress passes this bill, it will create the necessary government agency for licensing, licensing and registering aircraft and pilots, functions which we believe should be exercised by the federal government. In the meantime, as such government agency being in existence today, the work of Underwriters' Laboratories looking toward the same end involves the support of all who are concerned with safe and sane civil aviation. The aim in change of this work under May 11, W. Schneider here the professional knowledge and industry required by their office, and thus afford the necessary guarantee for the delivery of work they are called to perform. On the other hand, the fact that Underwriters' Laboratories is an organization maintained by the National Board of Fire Underwriters for service, and not for profit, gives it all the more that character of great impartiality which such an organization must possess if it is to gain the confidence of aircraft operators.

Civic Value of Aeronautical Contents

A CAMPAIGN is now being carried on in St. Louis with a view to having the 1932 Pulitzer Trophy race held in that city. The holding of this race requires a total expenditure of about \$200,000, and it is proposed to subsidize the amount well in advance so that St. Louis may be entitled to hold the race.

This is a very interesting sign, considering that the St. Louis sportsman are looking ahead at least eighteen months. The 1932 contest for the Pulitzer trophy race is to be held at Detroit, while the location for the following year's race is still in the

hands of the Contest Committee of the Aero Club of America. The latter has already received bids from various cities for this and other events to be held in connection with the Pulitzer race, and the committee would like to hear from others so that the best possible location, all factors considered, may be chosen.

The interest St. Louis and other cities display toward this classic American sport event shows that the public is at last beginning to realize the value, to a city, of an interesting aviation meeting. It should be remembered, to fully appreciate this trend, that it requires a considerable amount of initial outlay to finance a flying meet. On the other hand it is obvious that all groups in a city gain more from such a meet than they have expenditures to shoulder in order to obtain it. There is hardly a branch of commercial and kindred activities that does not gain from the influx of visitors, and here from the publicity given to the city. When the industries in a locality are aided, everyone in the vicinity is benefited by the civic improvements resulting therefrom.

Frequently such proceeds of an aviation meet are used to establish an airport, or to improve the existing one, if the city is in that fortunate position. This is one of the best means of civic aid. A satisfactory airport is fully compatible with good railroad connections, and in other one only possible in the true sense. Railroads follow established lines, and many cities owe their rapid growth to the thoroughness they showed when the railroads were established. Today many cities have a similar opportunity in directing the coming air traffic to their district, for it is obvious that the city with the best landing facilities will be favored at the expense of less progressive communities.

The Australian Air Mail Service

THE service of the Australian Air Board is to extend service from with the carrying of mails under contract with the Commonwealth Government. The value of air mail service, as everyone is experienced well worth while. Already mails are being carried in this manner in Europe, but the distances covered are small, and the volume of mails is absolutely insignificant in comparison with that carried by the U. S. Air Mail Service. The Australian air mail line, on the contrary, will cover distances comparable to that of our transcontinental route and further, they will cross sparsely inhabited territory, where large communities are far apart.

These conditions serve to be particularly favorable for giving the best possible demonstration of the value of air mail service, where distances between centers of population are large, and the intervening area is highly populated, railroad communication sparse, for economic reasons. Again the high development of aviation is highly industrialized and thickly populated small sections. Under these conditions, then, airways are enabled to give tangible proof of the saving in time the aerial carriage of mails, passengers and freight produces.

Underwriters' Laboratories Aviation Record

Underwriters' Laboratories Issue First List of American Pilot and Aircraft Registrations

As was announced by *Aviation* last summer, Underwriters' Laboratories of 307 E. Ohio St., Chicago, which is maintained by the National Society of Fire Underwriters, has opened registers for aircraft pilots and all aircraft. These registers have been prepared at the request of the National Aircraft Underwriters Association, the members of which are lawyers who represent the registration of aircraft which they carry against fire, theft, collision, stranding and sinking, and other hazards. Similarly, members of the N. A. U. A. aim to organize the

The application for registration filed by the aircraft owner requires all essential information regarding the ship, must information as a certificate in the Register will have an impact all bearing upon many phases of insurance.

Aircraft intended for flying in international service will show the capital letter "N" preceding the registration mark as a symbol of American ownership. Aircraft not flying abroad need show the registration mark only. This mark will consist of alphabetical symbols shown in capital letters, thus



NABCE, the first new aircraft recorded in the United States in accordance with the provisions of the International Air Convention. Major and Mrs. Alexander flew on this ship last fall from Chicago to the Kansas City and Omaha meets.

Register for Aircraft Pilots as a condition of all policies issued hereafter.

The conditions governing the entry of machines and pilots, respectively, to the Aircraft Register and the Register of Aircraft Pilots are based upon the provisions of the Convention for the Regulation of Air Navigation agreed upon, subject to certain reservations, by the representatives of the Allied and Associated Powers serving on the International Commission on Air Navigation which was instituted as a sub-committee of the Peace Conference. The Convention was signed in Paris on Oct. 13, 1919, by the twenty-one Allied and Associated Powers, and it has to date been ratified by the following countries: Belgium, British Empire, France, Greece, Japan, Portugal, South-Central-American Republics and Spain. The United States has not yet ratified the Convention.

Registration of Aircraft

The Aircraft Register established by Underwriters' Laboratories defines aircraft according to ownership or use in State, Commercial or Private. State aircraft include (1) military aircraft, and (2) aircraft exclusively employed in State service such as posts, customs and police. Commercial aircraft are those aircraft used for the purpose of carrying passengers or business when one or more persons (in addition to the pilot and necessary other members of the crew) or freight are carried for hire or reward. Private aircraft include all aircraft, not State or Commercial.

State aircraft being government owned and/or operated will not be subject to registration.

"ABCE" or "DBUE", etc. These registration marks preceded by a dash will follow the nationality mark "N" for ships flying across national boundaries. A star indicating the registration mark will identify aircraft registered for private use.

The registration and nationality marks will appear once on each side of the fuselage or nacelle and on the upper and lower wing surfaces of airplanes. The letters will be of a size sufficient to permit identification while in flight and at considerable distances and/or elevations from the observer. The nationality mark will also appear on each side of the fuselage. The registration mark will serve as the "tail sign" of the aircraft in all radio or other equipment.

The accompanying illustration shows how the nationality and registration marks appear on an airplane.

The Air Board of Canada has recognized the Aircraft Register of Underwriters' Laboratories.

Registration of Aircraft Pilots

The plan for the registration of aircraft pilots outlines various essential features as follows: (1) in application form to be filed out by the pilot seeking registration giving full data as to his training and subsequent flying experience; (2) a physician's statement of accepted and needed examination; (3) a certificate of registration to applicants found qualified; (4) a system of penalties in Association members inflicting fines for failure to attend examinations and violations of security; (5) a Board of Inquiry to consider crashes and (6) Rules of the Air, covering pilots' conduct and responsibilities.

The certificate of registration expires after twelve months and previously if the pilot is inactive in flying for ninety days it may be cancelled or suspended at any time for cause and is automatically suspended pending inquiry following a crash landing or accident.

The first list of pilot and aircraft registrations has just been issued by Underwriters' Laboratories in *Aviation*, and is reprinted below. Additional lists will be published in successive issues.

Pilot Register

Certificate No. 1061 John Frederick Peters, Farmdale, N. I. Classification: Private and Commercial, landing on land or water.

Certificate No. 1062 Walter Becker, Newark, N. J. Classification: Commercial, landing on land only.

Certificate No. 1063 Edward M. Marshall, North Rose, West County, N. Y. Classification: Commercial, landing on land only.

Certificate No. 1064 Edward Albert Johnson, Dayton, Ohio. Classification: Private and Commercial, landing on land or water.

Certificate No. 1065 Rudolph W. Schneider, Chicago, Ill. Classification: Private and Commercial, landing on land or water.

Certificate No. 1066 William Thomas Tryphon, Baltimore, Md. Classification: Private and Commercial, landing on land only.

Certificate No. 1067 Wilbur Martin Pagler, Kokomo, Ind. Classification: Commercial, landing on land only.

Certificate No. 1068 Carl Brown Bender, Detroit, Mich. Classification: Private and Commercial, landing on land only.

Certificate No. 1069 John Arthur Young, Chicago, Ill. Classification: Private and Commercial, landing on land or water.

Certificate No. 1010 John A. Hanchinton, Baltimore, Md.

Classification: Private and Commercial, landing on land only. Certificate No. 1011 Chas. E. McKiverly, Seattle, Washington. Classification: Private and Commercial, landing on water only.

Aviation Register (For Identification Only)

Aircraft—Nationality and Registration Mark N-ABCE John M. Larson, New York City. Avro 504K, Pottsville, Ind. use only.

Aircraft—Nationality and Registration Mark N-ABCE Mark M. C. Drilling and Production Co., Wichita, Kas. Laird Swallow, Commercial, land use only.

Nationality and Registration Mark N-ABCE Akron Aeroplane Corp., Chicago, Ill. Avro 504K, Commercial, land use only.

Nationality and Registration Mark N-ABCE Wright Black Airport Corporation, Chicago, Ill. Laird Swallow, Commercial, land use only.

Nationality and Registration Mark N-ABCE John A. Hanchinton, Baltimore, Md. Avro 504, Private, land use only.

Nationality and Registration Mark N-ABCE R. W. Schneider, Chicago, Ill. Standard J1, Private, land use only.

Registration Mark N-ABCE Walter Becker, Newark, N. J. HB, Commercial, land use only.

Seaplanes—Nationality and Registration Mark N-ABCE Loewer Aeronautical Engr. Corp., New York City. Loewer Flying Yacht, Commercial, water use only.

Lighter Than Air—None registered.

Continuation of Aircrafts

It is expected that a procedure entering the necessary inspection of aircraft looking to release of Certificate of Airworthiness will be effective early in 1922.

The Huff-Daland Thick Wing Biplanes

The HD8A "Petrel" Three-Seater Commercial Airplane - the HD9A Two-Seater Army Training Airplane

Buff, Daland & Co. of Oshkosh, N. Y., have recently produced two extremely successful developments of their section multi-engine construction which are worthy of close examination.

The HD8A was brought out to meet the Army requirements of a Type 14 six-cylinder engine training plane, and was fitted with a four-cylinder engine as the HD9A. The "Petrel" HD8A is a further development of the machine incorporating the OX5 engine as a power plant, and some changes in the lines of the fuselage, providing a more powerful streamlined body. This machine has been produced to meet the growing demand for a sturdy, moderate powered three-plane airplane of simple construction, capable of being operated by one or two men. The HD9A is a similar machine, moreover, has been adopted by the U. S. Army arranged as a dual control two seater for training purposes.

Both airplanes present a novelty in small craft construction, with a new design of upper fuselage, extending to the bottom of the fuselage, affording a great convenience to passengers—a feature which is allowed in this type of construction without adding any of the working members.

Notwithstanding the two different uses of the same general type of construction, except for engine installation, their general construction will be given together.

Fuselage

The fuselage follows closely in design, the HD8A training plane, which was successfully used in land, flight tests, and accepted by the Army during the past year at McCook Field. It is a simple, sturdy, carry over to wings, a single piece wooden patch, while versus and floor ribs, and suitable struts

complete the structure without the use of any wires in the vertical planes.

The cockpit in both machines is of extremely strong proportions, built up of strong members, allowing ready entry and exit through the top, and an excellent upward looking angle, giving an observation as the crew might be. This feature has proven of great importance in instructional and passenger carrying work, when the psychological effect and the opportunity for the closest observation with the pilot is an important feature.

Wings

The wing section employed in both machines is the Gullwing 387, the first machine in this series, as far as is known, is built with this extremely efficient thick wing design. Both upper and lower wings are built upon member sided box spans of conventional type. An interesting feature, however, is the translocation of the upper air panels, which are one-third of the span from either tip; a built up Warren truss supporting the upper and lower beam members from this point to the tips.

The ribs are of special construction and fixed design. One to each span, and a central rib, are used to form the top and bottom flanges, fastened together by suitably spaced vertical members, while the cloth is secured separately about the upper and lower panels, giving added security by forming an independent attachment for both struts. Sand tests have shown these ribs beyond the required factor of eight without sign of failure. The covering edge is of canvas, while the trailing edge is of wood.

An interesting feature is the use of drift wires, which independently tension the upper and lower members of the spars,

French Progress in Civil Air Transport

In Three Years French Merchant Air Fleet Expanded from 46 Airplanes to 258 Airplanes, all of which are Used on Regular Transport Services

By Captain de Lavergne

French Air Attache, Washington, D. C.

The French aeronautical exhibition held at the Grand Palais in Paris and with a great success. Thousands of visitors came from all parts of Europe to witness the last achievements of French aviation. What we saw last year concerning the huge French airframe showed the future of aviation is now demonstrated in full light.

At a time, last year, this future looked dark. Owing to the last conditions of the industry and the market, several constructive thoughts of closing the doors of their plant. But with the aid of the Undersecretary of State for Aviation, M. Laurent Eynac, entrusted their confidence and succeeded in keeping them working.

Then Year Progress

At the beginning, in 1930, our commercial aviation comprised only 27 pilots and 46 planes. In 1930 this number rose to 72 pilots and 140 airplanes. And by the end of 1931 we had an actual fleet of 258 airplanes, flown by 182 pilots.

So, each year gives new encouragement, first, to the public who are confident and have air travel, second, to the companies which were obliged during the past summer to close their program, and third, to the manufacturers, who now can expect a regular output of the aircraft industry.

In six months, from January to July 1931, 3,312 trips were successfully completed giving a total of 1,200,000 km. (about 500,000 mi.) flown. These trips must be compared with short flights made at the start of an occasional tourist, the flight are regular, subjected to rigid schedule, and are resulting in a distance covered between the terminals.

We prefer not to take into account short flights because they may give a wrong idea of the aerial activities. For instance, the airlines of the Compagnie Aérienne Française show that during the first six months of 1931, 11,500 passengers were carried by its airplanes. But these flights cannot be considered as commercial, as they are only made for purposes of sport, and sport and recreation are two different things. It is not surprising, therefore, to have an idea of the small passengers carried for pleasure during two or three months, but each airline should be compared apart. For instance, with respect to American figures, not of the commercial airlines of airplane passengers but of the transport fleet of 1931, it would be interesting to know how many flies from one city to another, and how many flies from one city to five or fifteen minutes.

The results of commercial aviation in France are very encouraging as we have said. This may be best seen from the fact that while in 1930 only 193 passengers were transported, in 1931, between January and June, 6000 flew on French French airlines. Fourteen of our airlines, in the first year of 1931, occupied the head of our merchant aviation during the same period.

Aerial Photography Work

The Compagnie Aérienne Française, whose headquarters are at aerial photography, and its work was displayed at the Grand Palais. Here, where the public a good idea of the possibilities of aerial photography. The map of France has been spectacularly covered by this firm, and the results are so accurate that the city of Paris has been limited in order from the plan of our capital. Blacked in villages of the devastated regions have been photographed, which was a work of great help to the reconstruction undertaken by the Ministry of Lefebvre Region. The business figures of this company show a total of 4,000,000 francs, or more than half of the total revenue of commercial aviation in France.

Directed by a capable engineer, this company has a selected personnel of high technicians, formed for the most part in the Polytechnic School. Their instruments have been adjusted which allow the airplanes to permit absolutely the observation due to the disturbance of aerial photographs. These processes are absolutely recent.

The work has been so much appreciated that the Commission government requested the Compagnie Aérienne Française, to make the map of Roumanie, an operation which, by the usual program, would have lasted twenty years at the cost of 48 or 50 million francs, while it will only take three years now at a price of less than six million francs.

I might add that the Compagnie Aérienne Française—which I helped to establish—keeps to pay a dividend of 6 per cent.

Advantages

Mr. Bridget recently made some interesting statements concerning the future development of commercial aviation. He says that the aerial activities will adjust itself to the various uses. For instance the airplane of the Paris-London route will remain a small machine flying very fast (120 m.p.h. at least) and will be performed in just many places in service, leaving very different machines for instance, than to take large machines sailing twice a day.

Between Paris and Algiers, a trip which includes the crossing of the Mediterranean Sea and which amounts to 360 miles, it will be necessary to use multi-engine airplanes up to 300 hp, provided with all the comfort desirable for a 7 hr. trip.

For long distance aerial trip the tonnage of the planes will have to be increased, and it is possible to foresee that for example, to the Paris-Lyon line, the planes operating these routes will have a 6000 hp. power plant.

The total area of the Air Line will be about 1500 sq. ft. and the gross weight on getting off will be 36 tons.

The total power necessary computed by the formula:

$$P = \frac{W \times V \times 44}{375}$$

Where P is the power, W the total area, V the weight at the getting off.

This weight (36 tons), as approximated as follows:

Weight
Passenger (16 at 160 lbs.)
Crew (2 at 160 lbs.)
Mail (100 lbs.)
Fuel (1000 lbs.)
Total and free

36 tons

The gross weight being 50 tons, it follows that 377 tons will require available for the transportation of freight and passengers. 180 percent could be carried.

The speed of such an aircraft would be around 350 m.p.h. that is to say that New York will be distant 54 hr. from Paris via Bridget said that the plane of 1930 hp. will be reduced in three years and that one of 3000-6000 hp. in ten or fifteen years.

The Great Air Route of Tomorrow

We have said before that the number of passengers carried on French civil airplanes increased steadily year by year from 1918 (1922) to 1931 (2000 passengers in 6 months). We have also interesting data in the books of the Customs House. The taxes received in 1931 at Le Bourget were 17,330 francs and for the first 6 months of 1932 500,000 francs.

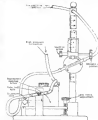
The French project of creating new air routes in Asia, Africa, and will give an idea of our faith in aviation. The Toulouse-Morocco line will be prolonged this year to Dakar, and in the future to Port-au-Prince, Brazzaville, and Algiers. This route will be navigated by Latécoère planes of a new type. The Latécoère line air, with the Aeromarine airplanes, the only ones which have so far appeared without accident. The King of Belgium, recently, received the 32 m.p.h. trip to Morocco and was delighted with the comfort and the pleasure of the voyage.

Vernier Manometer with Adjustable Sensitivity

By D. L. Bacon

In this instrument the air pressure is balanced against the head of liquid in a movable and indicator tube. The height of which may be accurately measured relative to the constant level in a reservoir. It is portable, requires no calibration and may be adjusted for sensitivity and for damping.

Attention to the accompanying illustration, it will be seen that the gauge comprises a cylindrical tank or reservoir mounted on a frame, hinged to the base plate and adjustable in height by means of a screw. The short glass indicating tube is mounted on a disc which may be rotated to incline the tube at any desired angle from the vertical in order to increase or decrease the sensitivity of the manometer. The standard reference line, which is operative in order to coincide with the manometer, passes through the center of the disc and forms part of a short secondary scale, the graduations of which correspond approximately with values in head 63 mm. (2.48 in.) at the lowest angle of the indicating tube and of 2 mm. (0.08 in.) at the highest angle. The time and only while observing small fluctuations from the mean head and permit the estimation of such fluctuations to 0.01 mm. (0.0004 in.) The frame supports the adjustable indicating tube directly upon the square vertical rod and may be delicately adjusted in height by means of a small screw working with a rack on the back side of the post. Sufficient friction to keep the frame from moving by its weight alone is furnished by a coiled spring of suitable material, but the gauge may be used without special vibration or other disturbance by



Diagrammatic sketch of Vernier manometer with adjustable sensitivity

is not considered satisfactory as errors may be introduced by a tendency to bend up a pressure difference across the orifice.

—D. L. Bacon, Patent No. 1,711,111

The Airways Association

The Airways Association, comprising the students taking the course in commercial airplane instruction at the American Airways Association, is now in College Park, New York City. The association was organized in September, 1931, and has made rapid strides in its membership and in its activities.

The present object of the association has been stated previously, acting through their chapters in representing the interests of the student, and it has been found, in practice, to be mutually advantageous.

The purpose of the body is to encourage and further the cause of aeronautics in general and the interests of the student connected with it, besides its social life. Membership is entitled to express interest in aviation.

The current officers of the association are: President, J. J. Higgins; Vice President, R. W. Jackson; Secretary John Higgins; Treasurer, R. E. Selby.

The French Undersecretary of State for Aviation is now strengthening a line which would connect Paris and Constantinople with a stop at Marseille. Already a big air port is in the process of construction at Marseille, which will have all the features of Le Bourget and from which the planes will fly to the Orient, and to Algeria.

The Paris-Warsaw line will be prolonged to Riga in 1932 in the same direction, there will be a stop at Moscow and will have branches toward Copenhagen, Stockholm, and Warsaw.

Before three or four years this scheme will be reality.

Spokane News

En-Land, Floyd Kelso of Lewiston, Idaho, 300 miles south of Spokane, was the principal in an annual experience near Spokane recently. He had come to Spokane to take delivery of a 36 hp. Curtiss airplane, and having started on the homeward flight, the weather turned, ten miles out of the city, a "ver among winds." Opposing currents appeared to neutralize him at all points of the compass, forcing in aerial school. The Curtiss plane, which had been in the air for 10 minutes, was forced to land in five miles from the city. The machine was found about 100 ft. and was entirely out of control. The pilot was forced to get out of the machine and was rescued by a local pilot. The machine is a Curtiss plane.

Six students are enrolled in a flying class under En-Land Kelso at Lewiston, and so many more will begin the course next month. With En-Land Kelso, who is a local pilot, and who gives lessons living near Lewiston, who will not only instruct, when purchased, in private flights only.

The Curtiss Twin-Engine Torpedo Seaplane

More Particulars of the Twin-Engine Cantilever Monoplane
Built by the Curtiss Aeroplane and Motor Corp. of Garden City, L. I.

The Curtiss Aeroplane and Motor Corp. of Garden City, L. I., has recently landed over the Navy Department a very interesting torpedo seaplane known as the Curtiss CP (Curtiss Prototype). This is one of the most advanced designs yet produced in the country and shows that American military airplane design is able to keep pace with that of any other country in the world, in fact this machine would appear to be without a rival as far as excellence of design is concerned.

The seaplane is a cantilever monoplane with the engine mounted prominently in the center. The engine is Curtiss C-102-2 and drive tractor propellers. The landing is by two Luskin wheels mounted under the engine nacelle under the cross. The tail bracts are in the space between the engine nacelle and the control nacelle. The engine nacelle is mounted on the side of the center in plain view of the pilot, so that they are only about 15 ft. from his head and on a level with it.

The entire landing, except the 10 ft. long retract, is built of wood. The wings are covered with fabric and taper both in chord and camber from the root to the tip. They have a span of 31 ft. The maximum thickness of the wings is 30 in. and the chord at the root 18 ft., which gives a maximum wing depth of 16.6 per cent. It is expected that future models will be constructed of metal and will be somewhat lighter.

The undercarriage consists of two main struts, one under each engine. This arrangement shows the need of wing tip floats and the same floats are sufficiently large to allow the designer

to dispense with any tail floats also. The engine is supported on beams, one of a pair running from the root and to the fuselage and the other from the rear of the engine nacelle, the pair being parallel. There are four beams altogether. There are two vertical fins and two inclined rubbers. The method of rubber control is very interesting. There is only one control line on each rubber, these lines are in the space between the rubbers. The tips of the balanced portions are connected together by a wire. Thus a pull on one control line is transmitted to the other, the rubber is held back and by that means in the other rubber. The rubbers are located directly behind the propellers and hence are in the streamlines, which arrangement makes for excellent control.

This machine has a high speed of 100 m. p. With only one engine running it loses only 100 ft. per second. It is expected that with aerial construction the machine will be able to fly at 110 m. p. on one engine. The weight load is about 2000 lb. including oil fuel and oil, over and a standard torpedo mounted. The retract is a common pivot and retract pivot. The pilot also acts as the landing.

There are several very accurate models on the machine. Among them may be mentioned the stands for the nacelles in the center line, the retract, the struts that pull in and out of the nose on each side of the engine. Handrails on the sides of the control nacelle and steps on the undercarriage struts provide any access and exit.

A New Savoia Scaplane

The need of a new school airplane really modern in design and construction has been felt by many institutions. Feeling that a machine that could cover the requirements already assumed by several test machines is required for the training of naval pilots, the Savoia-Simmonds After Sales of Santa Caterina, Italy, has completed a new machine known as the S23. The extensive experience of the S.I.A.I. in making a machine school has been embodied in the design of this machine. This company has run a school ever since 1915 at Santa Anna on the shores of Lake Maggiore. In fact, this was the first school for seaplane pilots in Italy. It will now be repeated, using the S23 type of machine for the training of naval pilots.

The S23 is equipped with the D90 hp. Isotta Fraschini type V-8 engine which has a low fuel consumption and good re-



Section A-17 Training Seaplane

tracts. The pilot and instructor sit side by side and are, of course, furnished with dual control. Particular pains are taken in the design to prevent any repairs and maintenance.

The following are the best specifications of this machine:

| | |
|-----------|--------------|
| Wing | 31 ft. 6 in. |
| Span | 31 ft. 6 in. |
| Length | 21 ft. 6 in. |
| Height | 11 ft. 6 in. |
| Weight | 2100 lb. |
| Engine | 100 m. p. |
| Speed | 100 m. p. |
| Altitude | 100 m. p. |
| Range | 100 m. p. |
| Endurance | 100 m. p. |

The Nationalization of the A.C.A.

The nationalization of the Aero Club of America which was mentioned in a previous issue, is being effected by endorsing the plans of the National Aero Association formed at the convention held at Omaha, Neb., in 1921. The Special Committee appointed by the Board of Governors of the Aero Club of America, and the representatives of the National Aero Association, have agreed upon the following plan of reorganization which shall result in the completion of legal formalities before it is put into execution.

The United States is to be divided into nine Districts, corresponding to the Corps Areas of the Army Air Service. Two representatives will be elected in each. District (Cape Area) is to serve on the Board of Governors of the National body. One of these representatives will be elected Chairman of the District and become automatically, through his election, one of the Vice Presidents of the national body. One of these representatives must be an aviator.

The plan of incorporation also provides for the election of a President, three Vice Presidents, and a Board of Governors of thirty, composed of members generally representing the nine Districts (Cape Area) and twelve elected at large.

Until election can be legally held under this plan of reorganization, the following members of this Special Committee represent the Aero Club of America and the National Aero Association: Caleb K. Brown, chairman, Captain Cummings, Army Club of America, and Sidney D. Walden, president, National Aero Association.

Flight Operations, Naval Aviation

The Bureau of Aeronautics, Navy Department, advises that on checking out the flight operations at naval air stations and with fleet air squadrons during the fiscal year ending May 31, 1922, a large decrease in the distribution of flying hours among the several units concerned have been found. The summary printed below gives the corrected distribution.

Flight Operations at Air Stations and with Fleet Air Squadrons, Fiscal Year Ending May 31, 1921

| | Shipboard & Airplane | | | Shipboard | | |
|--|----------------------|-------|-------|-----------|-------|-------|
| U. S. Pacific Fleet | Flights | Hours | Miles | Flights | Hours | Miles |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
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| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
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| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
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| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
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| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
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| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
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| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
| Carrier Battle <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> <td>1,047</td> | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 |
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Foreign News

Colombia

Vice Consul Edmund B. Montgomery, at Barranquilla, reports that at the present time the Colombian Government is subsidizing the weekly aerial mail service of the Compania Colombo-Alemana de Transportes Aereos between Barranquilla, Giradot, and Nieva to the extent of \$100 per trip, plus a payment of \$0.03 per 15 grams for mail carried. The company has five seaplanes with 500 hp. motors, carrying three passengers each.

Mail transported by river steamboat takes from one to two weeks going from Barranquilla to Bogota, depending on the condition of the river, whereas by air service it arrives in 24 to 30 hr. American business men desiring to make use of this fast service to interior points in Colombia can purchase stamps in New York City at Vasquez Correa & Co., 1 State Street.

On Oct. 23, last, the service was extended to include a weekly trip from Barranquilla to Cartagena, leaving Saturday and returning Monday. The aerial postage is 15 cents for each 30 grams, and the passenger fare is \$50 Colombian currency.

Germany

The three most important aeronautical associations of Germany, the Deutscher Luftfahrer Verband, the Aero-Klub von Deutschland, and the Allgemeiner Deutscher Flugverband, have amalgamated under the new name of Deutscher Luftfahrt-Verband. The new organization will act as the governing body of aerial sport in Germany.

Considerable activity is reported in connection with the third German soaring competition which will be held next summer as in the past two years in the Rhön hills, near Frankfurt-am-Mein. One construction firm of soaring machines, the Weltensegler Gesellschaft of Baden-Baden, has created a large school at the Wasserkuppe, in the Rhön district, and this establishment is now being enlarged by the addition of 15,000 sq. ft. of hangar space. Numerous pupils are in training despite the winter season, and hundreds of soaring machines of types which have proven their worth in the last competition are on order.

The Minister of Transport has decreed the suspension of subsidies for the German air mail services during the winter, because "the machines and present ground organization do not meet the requirements for winter operation, and because of the impossibility of increasing the number of aircraft as long as their construction is prohibited by the Allied Council".

Latvia

The Inter-Allied Reparations Commission has sold 80 former German airplanes which were stored since 1918 at Vamdrup, Denmark, to the government of Latvia.

Portugal

The greater part of the Portuguese military air fleet was destroyed on Nov. 28, last, by a fire which broke out during a storm in the Lisbon airport.

Siam

The London Times states that Lord Northcliffe, who recently visited Siam on his round-the-world journey, found considerable aeronautical activity in that country. At Don Muang there are 115 airplanes, including school machines, and a staff of 650 men. There are five airports and twenty-five landing places in Siam, and the ground organization is said to be the equal of that found in Europe.

From another source it is announced that M. Long, governor general of French Indo-China, recently flew from Hanoi, F.I.C., to Bangkok, the capital of Siam in a party of three military airplanes. Negotiations are now under way for the establishment of an air mail service between the two countries.

Sweden

The Swedish government has appointed a commission to prepare the organization of airways between Stockholm and Gothenburg, Stockholm and Malmö, and Gothenburg and Malmö. The first named airway is to be operated with airships, and the line may be extended to England and to Russia. The lines having for their terminal the city of Malmö are to connect the Swedish airway system with the German air lines.

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